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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/587,506

07/27/2006

Knud Thomsen

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9945

28204 7590 07/07/2009  
SIEMENS SCHWEIZ AG  
I-47, INTELLECTUAL PROPERTY  
ALBISRIEDERSTRASSE 245  
ZURICH, CH-8047  
SWITZERLAND

EXAMINER

SCHNEIDER, CRAIG M

ART UNIT

PAPER NUMBER

3753

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/587,506	<b>Applicant(s)</b> THOMSEN, KNUD	
	<b>Examiner</b> CRAIG M. SCHNEIDER	<b>Art Unit</b> 3753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 April 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 April 2009 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Drawings***

1. The drawings were received on 4/21/09. These drawings are acceptable.

### ***Claim Rejections - 35 USC § 102***

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claims 1, 3, 4, and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Schlecht et al. (5,605,174).

Schlecht et al. disclose a solid/liquid interface having a liquid facing surface (inside surface of 20), the surface having smooth (84) and non-smooth structures (79), the non-smooth structures disposed for maintaining gas bubbles proximate to the surface. The maintaining gas bubbles proximate to the surface is functional language and the structure that has been indicated is capable of performing this.

Regarding claim 3, the non-smooth structures include at least one protrusion arranged on the surface extending in a direction away from the surface. The entire structure (79) is the protrusion.

Regarding claim 4, the at least one protrusion extends at an angle as seen in Figure 5 to the surface thereby cooperating with flat portions of the surface so as to define a recess (area where 79 extends to meet 84) disposed to maintain at least one bubble proximate to the surface.

Regarding claim 7, the surface is made of metal per the hatching in Figure 5.

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4. Claims 1-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Fulton (3,827,388).

Fulton disclose a solid/liquid interface having a liquid facing surface (27), the surface having smooth (33) and non-smooth structures (34), the non-smooth structures disposed for maintaining gas bubbles proximate to the surface (the vertical riser will create an eddy current that will maintain the gas bubbles proximate the surface)(col. 5, lines 4-63).

Regarding claims 2 and 5, bubble source means (45) disposed for producing bubbles proximate to the surface.

Regarding claim 3, the non-smooth surface (34) protrudes from the smooth surface (27) as indicated in Figure 5.

Regarding claim 4, the protrusion as indicated above and as seen in Figure 5 extends at an angle from the smooth surface (27) and maintains an air bubble proximate to the surface.

Regarding claim 6, the bubble source (45) further includes a cavity (50) arranged between the feeding duct (46) and the outlet (51) at the surface so as to define a gas bleeding hole.

Regarding claim 7, the surface is made of metal per the hatching in Figure 5.

5. Claims 1-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Petrov et al. (3,659,542).

Petrov et al. disclose a solid/liquid interface having a liquid facing surface (1), the surface having smooth (area of 1 in between the steps 5) and non-smooth structures

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(5), the non-smooth structures disposed for maintaining gas bubbles proximate to the surface (col. 1, line 64 to col. 3, line 11).

Regarding claim 2, bubble source means (7) disposed for producing bubbles proximate to the surface.

Regarding claim 3, the non-smooth surface (5) includes a protrusion arranged on the surface extending in a direction away from the surface.

Regarding claim 4, the recess is the area between 6 and 1 that 8 is located inside of as seen in Figure 3 and this recess maintains an air bubble as indicated in Figure 7.

Regarding claim 5, the bubble source includes at least one gas feeding duct arranged such that its outlet is proximate to the surface as can be seen in Figure 3.

Regarding claim 6, the bubble source further includes a cavity (area between the feeding duct and the outlet) arranged between the feeding duct (area above 7 in Figure 3) and the outlet (area of 7 that is flush with the surface 1) at the surface so as to define a gas bleeding hole.

Regarding claim 7, the surface is made of metal per the hatching in Figure 3.

### ***Response to Arguments***

6. Applicant's arguments filed 4/21/09 have been fully considered but they are not persuasive.

7. In response to applicant's arguments, the recitation of a window in a pulsed spallation target has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it

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merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

### ***Conclusion***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CRAIG M. SCHNEIDER whose telephone number is (571)272-3607. The examiner can normally be reached on M-F 8:00 -4:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robin Evans can be reached on (571) 272-4777. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/C. M. S./  
Examiner, Art Unit 3753  
June 26, 2009

/Gregory L. Huson/  
Supervisory Patent Examiner, Art  
Unit 3751